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said bottom defining an opening therethrough and a flange having first and second sides formed from material of said bottom surrounding said opening and extending away from said bottom and into said container;

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a valve cup carrying a valve, said valve cup having a wall extending through said opening in said bottom, said wall disposed adjacent said flange first side;

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an inner unitary vessel having an upper open end and a closed bottom;

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said upper open end of said inner vessel disposed adjacent said flange second side whereby portions of said valve cup and portions of said inner vessel are in contact with said flange;

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an elastomeric seal between said flange and said upper open end of said inner vessel and between said flange and said valve cup;

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means for non-removably affixing said inner vessel to said flange including crimping those portions of said valve cup and said heat exchange unit in contact with said flange;

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carbon substantially filling said inner vessel; and

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carbon dioxide gas under pressure adsorbed onto said carbon, whereby when said valve is activated, said carbon dioxide gas is desorbed from said carbon and cools said beverage.

18. (Amended) A container as defined in claim 17 which further includes a protective cap secured to said valve cup for protecting said valve and having a member pivotally affixed to said cap and having a downwardly movable surface for contacting and activating said valve to release the carbon dioxide.

REMARKS

The claims appearing in this application are 17 – 19. The claims were finally rejected in the Office Action of September 5, 2002 under 35 U.S.C. § 112, second paragraph, as being indefinite because of a lack of a proper antecedent basis for a term used in claim 17. Claim 17 has been amended to overcome the indefiniteness and Applicant hereby respectfully requests that this objection be withdrawn.

Claim 17 and 18 were rejected under 35 U.S.C. 102(b) as being anticipated by the newly cited U.S. Patent to Warner (3,417,573). Claim 19 was rejected as being obvious over the patent to Warner in view of Aitchison et al. (5,214,933). Claims 17 and 18 were rejected as being obvious over Warner in view of Chou (4,925,470) and claim 19 was further rejected as being obvious over Warner in view of Chou and further in view of Aitchison et al. Applicant has amended claims 17 and 18 to more specifically define his invention and respectfully submits that the newly amended claims define subject matter which is patentably distinct over the references Warner, Chou and Aitchison taken separately or in combination and therefore respectfully requests reconsideration of claims 17, 18 and 19 as amended.

Applicant's invention as defined by the amended claims is directed to a container having a heat exchange unit for cooling a beverage and includes an outer unitary vessel which contains the beverage and has an open top and a closed bottom. The bottom defines an opening therethrough and a flange having first and second sides formed from material of the bottom surrounding the opening and extending away from the bottom and into said container. A valve cup carrying a valve and having a wall extending through the opening in the bottom with the wall disposed adjacent the first side of the flange and an inner unitary vessel having an upper open end and a closed bottom with the upper open end of the inner vessel disposed adjacent the flange second side such that portions of the valve cup and portions of the inner vessel are in contact with the opposite sides of the flange. An elastomeric seal is provided between the flange and the upper open end of the inner vessel as well as between the flange and the valve cup. The inner vessel and the valve cup are then non-removably affixed to the flange by crimping those portions of the valve cup and the inner vessel in contact with the flange. Carbon substantially fills the inner vessel and carbon dioxide gas under pressure is adsorbed onto the carbon whereby when the valve is activated, the carbon dioxide gas is desorbed from the carbon and cools the

beverage. Claim 18 defines a protective cap which is secured to the valve cup for protecting the valve and has a member pivotally affixed to the cap and having a downwardly movable surface for contacting and activating the valve to release the carbon dioxide. Claim 19 specifies that the protective cap is snapped in place on the valve cap. Applicant respectfully submits that neither Warner, Atchison or Chou are the combination of these references anticipates or renders obvious the structure as defined in independent claim 17 as outlined above and dependent claims 18 and 19.

U.S. Patent 3,417,573 to Warner does disclose an outer and inner container with the inner container being a heat exchange unit and the outer container containing a beverage to be cooled when the liquid refrigerant in the heat exchange unit is released. The heat exchange unit is affixed to one end of the container by crimping as shown in Figures 3-6. The crimping is accomplished by providing a flange in the top 1 as shown in Figure 3. The flange extends away from the top 1 but does not extend into the container (as required in claim 17) but rather extends out of the container. The necked down top portion of the inner container 2 is inserted into the opening provided in the top 1 surrounded by the flange and into engagement with the surface of the flange. As is shown progressively in Figures 4, 5, and 6 the two pieces of metal defined by the flange and the upper portion of the inner vessel are progressively rolled over to the position shown in Figure 6 to provide a seal. It is clear at this point that there is no positioning of a valve cup with regard to the inner container or the flange formed therein as is expressly required by claim 17, as amended. The valve member consisting of the vent pipe 14 and a self-closing valve 19 are disposed within a closure member 10 by being swaged into the upwardly flanged inner portion thereof. This structure is then seated over the top of the seal 7 and is then secured in place by being crimped. Applicant respectfully submits that Warner does not disclose a structure as defined in independent claim 7 wherein the flange is formed from material of the bottom and

extends into the container with a valve cup having a wall disposed adjacent one side of the flange and an inner vessel having an upper end which is disposed adjacent the opposite side of the flange with the combination of flange, the upper end of the inner vessel and the valve cup wall all being crimped together to non-removably affix the inner vessel, valve cup and outer vessel together.

The valve 19 as is shown in Warner is a flexible member having openings therethrough which seats against a downwardly projected annular ring to seal the contents of the liquid refrigerant from exhausting into the atmosphere (See Figure 2). When the valve actuator as shown at 16 is screwed in place on top of the protective cap 15 which is crimped onto the central assembly of the closure member 10 then a plunger on the actuator engages the flexible valve member 19 and pushes it downwardly away from the annular ring seat to allow the gas to exhaust through openings in the flexible member of the valve 19 and openings provided in the actuator 16 to the atmosphere. The actuator as defined by Applicant in dependent claim 18 is totally different and includes a member pivotally affixed to the protective cap and having a downwardly moveable surface for contacting and activating the valve to release the carbon dioxide housed therein. Thus, there is no rotational movement required to activate Applicant's heat exchange unit rather, there is merely a depression of the member pivotally affixed to the cap so that it engages the valve and activates the same.

Further, as is clearly disclosed in Warner, the refrigerant used is a liquid coolant such as Freeon which is allowed to escape when the valve 19 is depressed downwardly by the plunger through screwing the actuator 16 onto the cap 15. As defined in claim 17, Applicant's structure includes carbon substantially filling the inner vessel and carbon dioxide gas under pressure adsorbed onto the carbon. This structure is clearly not disclosed or even hinted at by the

references of record individually or in combination with the additional structure as defined by independent claim 17.

In rejection of claims 17 and 18 the Examiner characterized Warner as having the flange surrounding the opening and extending away from the bottom 5 and into the container B. Applicant respectfully submits that this characterization is incorrect for as above discussed and is clearly shown in Figures 3-6. The flange extending from the top 1 extends outwardly from the container and not into the container. In addition, the Examiner has characterized Warner as including a structure wherein the heat exchange unit valve cup and flange are non-removably affixed by crimping those portions of the valve cup 10 and a heat exchange unit in contact with the flange 1. Again, as above pointed out, Applicant respectfully disagrees with this characterization of the teachings of the reference Warner. Furthermore, the Examiner has characterized the element 16 of Warner as a protective cap which again it is respectfully submitted as incorrect. A cap 15 is provided and is crimped onto the central assembly of the closure member 10 to protect the valve member 19. The member 16 is an actuator which includes a plunger (not designated by any numeral) which upon screwing the actuator down on the protective cap 15 does engage the valve to activate it. As above pointed out, this is a totally different structure than that claimed by Applicant in the claims as presently amended and under consideration.

The Examiner combined Atchison with Warner and uses Atchison for the purpose of teaching a cover that is snapped in place. Applicant respectfully submits that this characterization of Atchison et al. is incorrect. Atchison at column 4, lines 30-41, expressly recites:

“In an alternative embodiment, “bayonet”-type sliding engagement between the cap 20 and vessel 12 may be provided whereby a plurality of beads 24a fixed to interior side wall 22 are

slidable with plurality of corresponding grooves 24b located on the exterior wall of annular portion 17. The device is activated by an upward manipulation of the cap 20 with the beads 24a guided vertically within grooves 24b. Preferably, a horizontal portion of the grooves 24b is provided to allow for a rotational locking step to prevent accidental discharge occurring (for example, owing to rough handling)."

Applicant respectfully submits that the description of the structure provided in Atchison in no way describes or even hints at a protective cap or cover which is snapped in place but rather clearly teaches the use of bayonet type of vale actuating structure which when activated causes the perforation member 26 to puncture the sealing element 32 covering the aperture 19 to allow escape of the pressurized refrigerant contained with the capsule 30. Applicant thus respectfully submits that a combination of Warner with Atchison does not result in the teaching of a snap-on protective cap for a valve.

The Examiner cites the patent to Chou solely for the purpose of showing that the heat exchange unit 11 can be placed at the bottom of an outer vessel containing a beverage. Applicant does not dispute that such a positioning is illustrated in the patent to Chou. However, Applicant respectfully submits that combining Warner with Chou and Atchison does not in any way result in a structure which is defined by Applicant's claims 17, 18 and 19 as amended and presently under consideration.

Applicant respectfully submits that claims 17, 18 and 19 as amended define subject matter which is patentable over the teachings of Warner, Atchison and Chou taken separately or together. Applicant therefore respectfully requests reconsideration of claims 17, 18 and 19 as amended and the issuance of a Notice of Allowance with respect thereto.

Also, enclosed herewith is a Petition for a Three Month Extension of Time.

The Commissioner is hereby authorized during prosecution of this application and any related appeal, to charge any fees that may be required (except for patent issue fees required under 37 CFR §1.18) or to credit any overpayment of fees to Deposit Account No. 50-0337. Please show our above-referenced docket number with any credit or charge to the deposit account.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Paragraph beginning at page 8, line 23, has been amended as follows:

Referring now more particularly to Figure 6, there is illustrated in schematic form and in partial cross-section a completed self-cooling beverage system constructed in accordance with the principles of the present invention. As is therein shown the system 110 includes the beverage can 112 having a bottom 114 and a top 116. The beverage can 112 contains a beverage 118. A heat exchange unit 122 having a valve cup 124 including a valve 125 disposed therein and having a button 126 which may be depressed to activate the valve is provided. The bottom 114 of the can 112 has an opening and a downwardly depending flange 128 which is sandwiched between the upper end 132 of the heat exchange unit 122 and the valve cup 134. As above-described an appropriate elastomeric washer is disposed between the surfaces of the flange 128 and the valve cup and heat exchange unit to effect the desired seals. A protective cap 136 is disposed over the valve 125 and is held in place by snapping the same downwardly through the utilization of an appropriate retaining clip 138. When the upper surface of the protective cover 136 is depressed downwardly it will pivot about the point of connection and contact the button or plunger 126 activating the valve 125 to release the refrigerant contained within the heat exchange unit 122. If the heat exchange unit utilizes a carbon carbon-dioxide system as above described then the appropriate heat sink 140 is disposed internally of the heat exchange unit 122 and is in the form of a plurality of ribs 142 through 148 which converge at a central point 150. Each of the ribs is in contact with the inner wall of the HEU 122 and conducts the heat contained within the beverage 118 internally through the carbon so that it may be exhausted upwardly through the valve 125 with the escaping carbon-dioxide gas. Obviously, the heat exchange unit and the refrigerant may take many other forms and may also be replaced by an exothermic reaction system without departing from the spirit or scope of the present invention which is directed to the manner of attaching the heat exchange unit to the bottom of the food or beverage container.

IN THE CLAIMS:

Please amend claims 17 and 18 have been amended as follows:

17. (Amended) A container having a heat exchange unit therein for [heating or] cooling [food or] a beverage comprising:

an outer unitary vessel for containing said [food or] beverage and having [a] an open top and a closed bottom;

said bottom defining an opening therethrough and a flange having first and second sides formed from material of said bottom surrounding said opening and extending away from said bottom and into said container;

a valve cup carrying a valve, said valve cup having a wall extending through said opening in said bottom, said wall disposed adjacent said flange first side;

an/inner unitary vessel having an upper open end and a closed bottom;

said upper open end of said inner vessel disposed adjacent said flange second side whereby portions of said valve cup and portions of said inner vessel are in contact with said flange;

an elastomeric seal between said flange and said [heat exchange unit] upper open end of said inner vessel and between said flange and said valve cup; [and]

means for non-removably affixing said inner vessel [heat exchange unit] to said flange including crimping those portions of said valve cup and said heat exchange unit in contact with said flange[.];

carbon substantially filling said inner vessel; and

carbon dioxide gas under pressure adsorbed onto said carbon, whereby when said valve is activated, said carbon dioxide gas is desorbed from said carbon and cools said beverage.

18. (Amended) A container as defined in claim 17 which further includes a protective cap secured to said valve cup for protecting said valve and having a [downwardly movable] member pivotally affixed to said cap and having a downwardly movable surface for contacting and activating said valve to release the carbon dioxide.